

**SOUTH BLACKBIRD CREEK  
WBID 655**

**Recreational Use Attainability Analysis**

May 2007

PREPARED FOR:  
RFP No: B3Z07134  
Water Quality Monitoring & Assessment Section  
Water Protection Program  
Division of Environmental Quality  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
P O Box 176  
Jefferson City, MO 65102

PREPARED BY:  
**MEC WATER RESOURCES, INC.**  
1123 Wilkes Blvd., Ste. 400  
Columbia, MO 65201

**Field Data Sheets for Recreational Use Stream Surveys**

Data Sheet A - Water Body Identification

**I. Water Body Information** (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	South Blackbird Creek		
Missouri Water Body Identification (WBID) Number:	655		
8-digit HUC:	10280201	County:	Putnam
Upstream Legal Description (from Table H):	18, 65N, 18W		
Downstream Legal Description (from Table H):	2, 64N, 17W		
Number of sites evaluated	7		
List all sites numbers, listed cnsquently upstream to downstream:	site 7      site 5      site 3      site 1 site 6      site 4      site 2		

**II. Subsegmentation** (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters		
PDOP		± _____ Feet or ± _____ Meters	

**III. Discharger Facility Information** (list all permitted dischargers on the stream)

Discharger Facility Name(s):	Unionville Country Club
Discharger Permit Number(s):	MO 0026646

**IV. UAA Surveyor** (please print legibly)

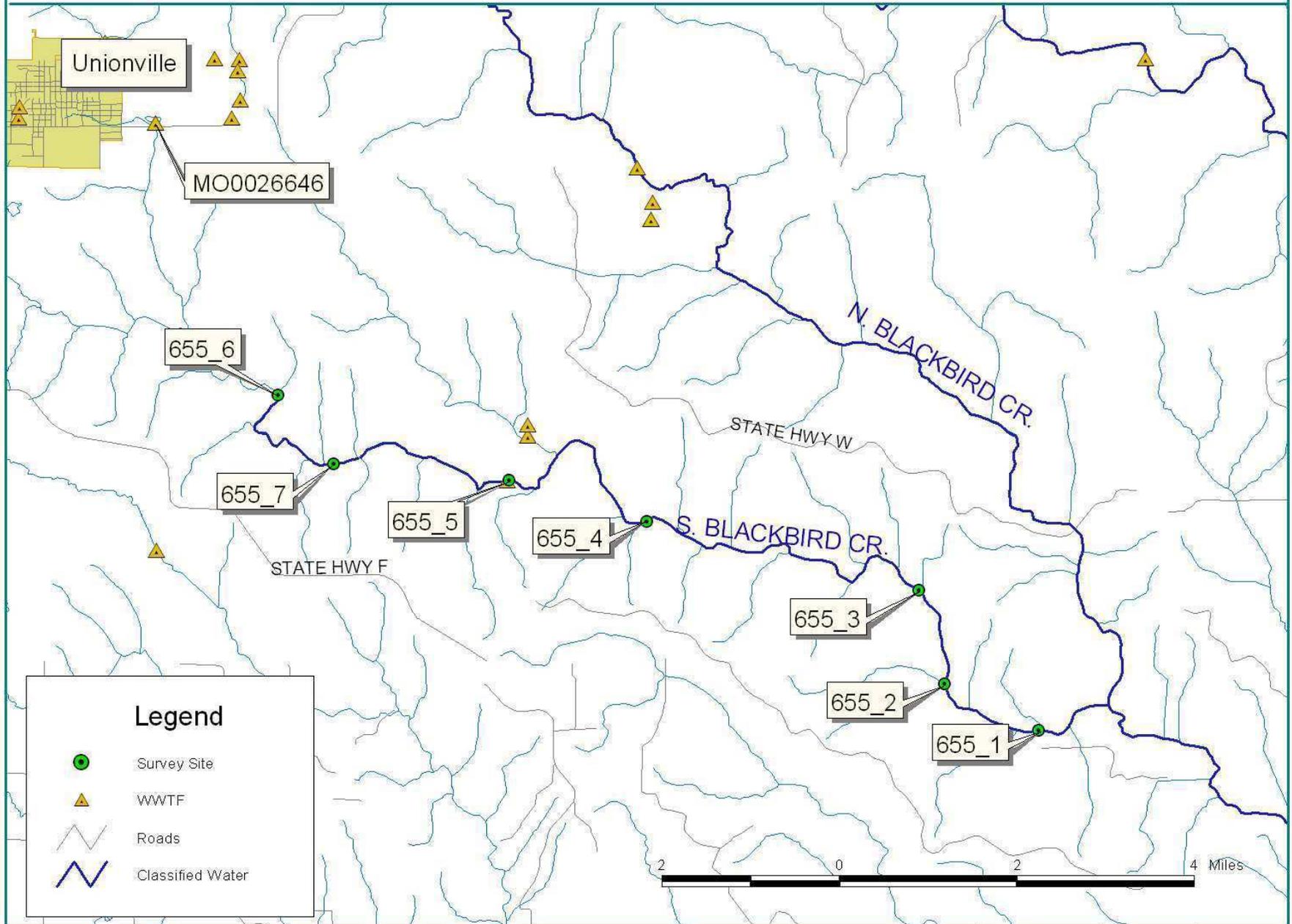
Name of Surveyor	Telephone Number: (573) 443-4100
Organization/Employer: MEC Water Resources	
Position:	

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Neil Muehl Date: 5/21/07

*Ar 5/25/07*

# S. Blackbird Creek (0655), Length = 13.0 mi., Permit # MO0026646



WBID# 655  
 Site# 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/20/07 8:45</u>	Site Location Description (e.g., road crossing): <u>Oak Trail Crossing</u>
Personnel (Data Collectors): <u>Nick Muenes, Jarrod R.</u>	Facility Name: <u>Unionville Country Club</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)	
Site GPS Coordinates: UTM X: <u>0517457</u>	Y: <u>4469286</u>
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)	
Global Positioning System (GPS)	
Static Mode	<input checked="" type="checkbox"/> Interpolation
Dynamic Mode (Kinematic)	Topographic Map or DRG
Precise Positioning Service	Aerial Photograph or DOQQ
Signal Averaging	Satellite Imagery
Real Time Differential Processing	Interpolation Other
HORIZONTAL ACCURACY ESTIMATE	
GPS Data Quality	
FOM	± _____ Meters
EPE	± <u>88</u> Feet or ± _____ Meters
PDOP	
Interpolation Data Quality	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

**Photos:**

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-1-757</u>	<u>Looking Downstream at T5</u>		
<u>655-1-758</u>	<u>Upstream at T5</u>		
<u>655-1-759</u>	<u>Upstream at T5</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign *	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>* Purple paint on fence</u>				

WBID# 655  
 Site# 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

**Indications of Human Use\*:** (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments: <u>None</u>					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<u>30</u>			
RUN			<u>20</u>			
POOL			<u>50</u>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<u>0</u> % Cobble	<u>10</u> % Gravel	<u>50</u> % Sand	<u>30</u> % Silt	<u>10</u> % Mud/Clay	<u>0</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None observed

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Nick Munn Date of Survey: 5/21/07  
 Organization: MEC Water Resources Position: Water Quality Scientist

February 16, 2007  
*RWC 5-23-07*  
*GAAC 5/25/07*

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u> Site #: <u>1</u> (WBID_Site#) Estimated Channel Incision: <u>0.4</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0517457</u> UTM Y: <u>4469286</u> Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>88</u> (feet) Average Stream Width: <u>8.5</u> (meters) Length of Survey Segment: <u>190</u> (meters) (20x average stream width) Field Staff: <u>Nick Muenks, Forrest Roberts</u>	Dissolved Oxygen Date: <u>5/21/07</u> Time: <u>8:42</u> Dissolved Oxygen: <u>9.15</u> (mg/L) Dissolved Oxygen: <u>95.7</u> (% sat) Specific Cond: <u>523</u> (µS/cm) Water Temperature: <u>17.9</u> (°C)
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## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11			
	Distance (m)	Depth (m)																						
1	0.20	0.12	0.00	0.11	0.20	0.11	0.20	0.10	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.12	
2	1.15	0.20	1.25	0.30	1.00	0.78	1.25	0.59	1.38	0.10	1.30	0.17	0.21	0.17	0.12	1.60	0.12	0.90	0.15	1.75	0.15	0.48	0.36	
3	2.10	0.25	2.50	0.20	2.00	0.79	2.30	0.66	2.56	0.16	2.40	0.13	0.19	0.19	0.16	2.20	0.16	1.40	0.17	2.80	0.15	0.96	0.33	
4	3.05	0.30	3.75	0.31	3.00	0.70	3.35	0.60	3.74	0.14	3.50	0.10	0.19	0.19	0.20	2.80	0.20	1.90	0.20	3.85	0.10	1.44	0.29	
5	4.00	0.44	5.00	0.38	4.00	0.62	4.40	0.58	4.92	0.10	4.60	0.10	0.10	0.20	3.40	0.24	2.40	0.47	4.90	0.55	5.95	0.00	2.40	0.30
6	4.95	0.68	6.25	0.45	5.00	0.53	5.45	0.50	6.10	0.10	5.70	0.10	0.10	0.19	4.00	0.25	2.90	0.57	8.05	0.00	2.40	0.30	0.30	
7	5.90	0.72	7.50	0.50	6.00	0.48	6.50	0.40	7.28	0.00	6.80	0.10	0.18	0.18	4.60	0.10	3.40	0.58	7.00	0.00	2.88	0.26	0.26	
8	6.85	0.66	8.75	0.52	7.00	0.38	7.55	0.33	8.46	0.00	7.90	0.10	0.10	0.10	5.20	0.10	3.90	0.57	8.05	0.00	3.36	0.21	0.21	
9	7.80	0.59	10.00	0.57	8.00	0.31	8.60	0.30	9.46	0.32	9.00	0.10	1.68	0.15	5.80	0.11	4.40	0.53	9.10	0.10	3.84	0.20	0.20	
10	8.75	0.58	11.25	0.54	9.00	0.16	9.65	0.20	10.82	0.10	10.10	0.10	1.89	0.12	6.40	0.14	4.90	0.55	10.15	0.13	4.32	0.13	0.13	
11	9.70	0.11	12.50	0.11	10.00	0.10	10.70	0.12	12.00	0.11	11.20	0.11	2.10	0.10	7.00	0.10	5.40	0.12	11.20	0.26	4.80	0.13	0.13	
12	9.80	0	12.70	0	11.30	0	11.30	0	14.20	0	11.40	0	7.70	0	7.20	0	5.50	0	11.30	0	5.10	0	0	
Feature Type (riffle, run, or pool)	pool	pool	pool	pool	pool	pool	pool	pool	riffle	riffle	run													

Notes: GPS location corresponds to Transect 01. Transsects ordered in upstream to downstream order.  
 Transsects will be measured beginning on left descending bank and finishing on right descending bank.  
 Transsects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1, and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Nick Muenks Date: 5/21/07  
AK 5/25/07

WBID# 655  
 Site# 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/21/07 10:00</u>	Site Location Description (e.g., road crossing): <u>Hemlock Rd crossing</u>
Personnel (Data Collectors): <u>Nick Muenkes Jerrod R.</u>	Facility Name: <u>Unzville Country Club</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0515752</u>		Y: <u>4470125</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>32.2</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-2-760</u>	<u>Foot prints at site 2</u>		
<u>655-2-761</u>	<u>Downstream view from Transect 1</u>		
<u>655-2-762</u>	<u>Downstream view from Transect 1</u>		
<u>655-2-763</u>	<u>upstream view from Transect 1</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 655  
 Site# 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**

(must be completed for each site)

**Indications of Human Use\*: (attach photos)**

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<i>20</i>			
RUN			<i>40</i>			
POOL			<i>40</i>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.) *ARC*

<i>0</i> % Cobble	<i>2</i> % Gravel	<i>60</i> % Sand	<i>45</i> % Silt	<i>3</i> % Mud/Clay	<i>0</i> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

*No vegetation or algae in wetted width. - Same as*

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

**Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.**

Surveyor's Signature: Nick Placent Date of Survey: 5/21/07

Organization: MEL Water Resources Position: Water Quality Scientist

*ARC 5/25/07*

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u>	Site #: <u>2</u>	(WBID_Site#)	<b>Dissolved Oxygen</b>
Estimated Channel Incision: <u>0.70</u> (m) (height between low bank width and water)	Date: <u>5/21/07</u> Time: <u>12:02</u>		
GPS Location (taken at transect 1): UTM X: <u>0515752</u> UTM Y: <u>4470125</u>	Dissolved Oxygen: <u>8.65</u> (mg/L)		
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 32.2</u> (feet)	Dissolved Oxygen: <u>93.9</u> (% sat)		
Average Stream Width: <u>7</u> (meters)	Specific Cond: <u>60.7</u> (µS/cm)		
Length of Survey Segment: <u>150</u> (meters)	Water Temperature: <u>19.1</u> (°C)		
Field Staff: <u>Nick Muenks Serrad Roberts</u>			

## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11				
	Distance (m)	Depth (m)																							
1	0.70	0.10	1.60	0.10	2.50	0.10	3.30	0.12	4.10	0.10	4.90	0.10	5.70	0.28	6.50	0.11	7.30	0.50	8.10	0.10	8.90	0.12	9.70	0.10	
2	1.23	0.10	1.85	0.10	2.48	0.10	3.10	0.12	3.75	0.17	4.40	0.11	5.05	0.51	5.70	0.32	6.35	1.00	7.00	0.12	7.65	0.18	8.30	0.35	
3	1.76	0.10	2.40	0.10	3.00	0.10	3.60	0.14	4.20	0.16	4.80	0.10	5.40	0.57	6.00	0.31	6.60	1.50	7.20	0.19	7.80	0.25	8.40	0.35	
4	2.29	0.13	2.95	0.15	3.60	0.10	4.25	0.14	4.90	0.15	5.55	0.10	6.20	0.72	6.85	0.23	7.50	2.00	2.65	0.23	3.30	0.26	3.95	0.34	
5	2.82	0.13	3.48	0.19	4.10	0.10	4.75	0.13	5.40	0.13	6.05	0.10	6.70	0.71	7.35	0.20	8.00	2.50	3.15	0.20	3.80	0.30	4.45	0.33	
6	3.35	0.15	4.00	0.20	4.65	0.10	5.30	0.15	5.95	0.12	6.60	0.10	7.25	0.70	7.90	0.20	8.55	3.00	3.65	0.20	4.30	0.30	4.95	0.28	
7	3.88	0.10	4.50	0.21	5.10	0.10	5.75	0.17	6.40	0.10	7.05	0.10	7.70	0.74	8.35	0.18	9.00	3.50	4.15	0.18	4.80	0.30	5.45	0.25	
8	4.41	0.10	5.00	0.22	5.60	0.10	6.20	0.17	6.85	0.11	7.50	0.10	8.15	0.65	8.80	0.20	9.45	4.00	4.65	0.20	5.30	0.31	5.95	0.18	
9	4.94	0.10	5.55	0.25	6.15	0.10	6.75	0.17	7.40	0.10	8.00	0.10	8.65	0.57	9.30	0.17	9.95	4.50	5.15	0.17	5.80	0.31	6.45	0.19	
10	5.47	0.10	6.10	0.25	6.70	0.10	7.30	0.15	7.95	0.12	8.60	0.10	9.25	0.50	9.90	0.19	10.55	5.00	5.65	0.19	6.30	0.29	6.95	0.17	
11	6.00	0.12	6.60	0.19	7.20	0.10	7.80	0.10	8.40	0.20	9.00	0.10	9.60	0.11	10.20	0.12	10.80	5.50	6.10	0.14	6.70	0.28	7.30	0.11	
12	6.80	0	7.40	0	8.00	0	8.60	0	9.20	0	9.80	0	10.40	0	11.00	0	11.60	6.00	6.60	0	7.20	0	7.80	0	
Feature Type (riffle, run, or pool)	run	run	run	run	run																				

Notes: GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.  
 GPS location will be measured beginning on left descending bank and finishing on right descending bank.  
 Transects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Nick Muenks Date: 5/21/07  
once 5-23-07 AK 5/25/07

WBID# 655  
 Site# 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/21/07 1045</u>	Site Location Description (e.g., road crossing): <u>Olive Run Trail Crossing</u>
Personnel (Data Collectors): <u>Nick M, Jermol R.</u>	Facility Name: <u>Unionville Country Club</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0515285</u>		Y: <u>4471818</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>16.2</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-3-764</u>	<u>Downstream view from T3</u>		
<u>655-3-765</u>	<u>Upstream view from T3</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 655  
 Site# 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

**Indications of Human Use\*:** (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<u>30</u>			
RUN			<u>50</u>			
POOL			<u>20</u>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No  
 If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<u>2</u> % Cobble	<u>3</u> % Gravel	<u>65</u> % Sand	<u>20</u> % Silt	<u>10</u> % Mud/Clay	<u>0</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

few aquatic plants

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Nick Plunk Date of Survey: 5/21/07  
 Organization: MEC Water Resources Position: Water Quality Scientist

AWC 5-23-07  
AK 5/25/07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u> Site #: <u>3</u> (WBID_Site#) Estimated Channel Incision: <u>0.35</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0515285</u> UTM Y: <u>4471818</u> → <u>Transect 8 near bridge</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 16.2</u> (feet) Average Stream Width: <u>7</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Alick Muenks</u> <u>Jerrold Roberts</u>	Dissolved Oxygen Date: <u>5/21/07</u> Time: <u>1045</u> Dissolved Oxygen: <u>9.84</u> (mg/L) Dissolved Oxygen: <u>107.6</u> (% sat) Specific Cond: <u>622</u> (µS/cm) Water Temperature: <u>19.7</u> (°C)
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## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0.60	0.10	0.50	0.11	1.00	0.22	0.20	0.13	0.30	0.15	3.40	0.10	0.00	0.11	5.40	0.10	2.50	0.11	0.30	0.20	0.20	0.12	
2	1.25	0.10	0.20	0.10	0.25	0.30	0.74	0.16	0.86	0.15	3.70	0.11	0.65	0.28	5.80	0.11	2.91	0.12	1.06	0.35	1.10	0.50	
3	1.90	0.17	1.90	0.15	0.50	0.31	1.28	0.17	1.42	0.16	4.00	0.13	1.30	0.17	6.20	0.13	3.32	0.16	1.82	0.11	2.00	0.64	
4	2.55	0.17	2.60	0.14	0.75	0.30	1.82	0.12	1.98	0.11	4.30	0.18	1.95	0.15	6.60	0.16	3.73	0.17	2.58	0.11	2.90	0.57	
5	3.20	0.16	3.30	0.12	1.00	0.28	2.36	0.13	2.54	0.17	4.60	0.18	2.60	0.13	7.00	0.19	4.14	0.17	3.34	0.10	3.80	0.49	
6	3.85	0.23	4.00	0.12	1.25	0.25	2.90	0.16	3.10	0.17	4.90	0.20	3.25	0.15	7.40	0.25	4.55	0.15	4.10	0.10	4.70	0.33	
7	4.50	0.23	4.70	0.13	1.50	0.22	3.44	0.20	3.66	0.18	5.20	0.21	3.90	0.11	7.80	0.25	4.96	0.13	4.86	0.10	5.60	0.25	
8	5.15	0.31	5.40	0.28	1.75	0.20	3.98	0.23	4.22	0.21	5.50	0.23	4.55	0.12	8.20	0.23	5.37	0.12	5.62	0.00	6.50	0.30	
9	5.80	0.22	6.10	0.27	2.00	0.18	4.52	0.26	4.78	0.20	5.80	0.20	5.20	0.11	8.60	0.20	5.78	0.10	6.38	0.00	7.40	0.34	
10	6.45	0.37	6.80	0.30	2.25	0.15	5.06	0.24	5.34	0.21	6.10	0.13	5.85	0.13	9.00	0.24	6.19	0.15	7.14	0.10	8.30	0.39	
11	7.10	0.20	7.50	0.15	2.50	0.10	5.60	0.15	5.90	0.19	6.40	0.10	6.50	0.12	9.40	0.13	6.60	0.16	7.90	0.22	9.20	0.28	
12	7.30	0	7.90	0	6.20	0	5.80	0	6.00	0	6.80	0	6.80	0	6.80	0	6.90	0	6.90	0	9.40	0	
Feature Type (riffle, run, or pool)	pool	run	run	run	run	run	run	run	run	run	riffle/run	run	run	run	pool								

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.  
 Transects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Alick Muenks      Date: 5/21/07  
Orwe      5-23-07      AK-5/25/07

WBID# 655  
 Site# 4

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/21/07 1145</u>	Site Location Description (e.g., road crossing): <u>Mayweed Trl crossing</u>
Personnel (Data Collectors): <u>Nick M. Jernick</u>	Facility Name: <u>Unionville Country Club</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>6510347</u>		Y: <u>4473062</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>20.9</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-4-766</u>	<u>Foot prints in stream at site 4</u>	<u>655-4-769</u>	<u>Downstream view from transect 11</u>
<u>655-4-767</u>	<u>Downstream view from transect 1</u>	<u>655-4-770</u>	<u>Upstream view from transect 11</u>
<u>655-4-768</u>	<u>Upstream view from transect 1</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign <sup>+</sup>	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>purple paint on fence posts</u>				

WBID# 655  
 Site# 4

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

**Indications of Human Use\*:** (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFPLE			<u>1/2 of site</u> 60			
RUN			40			
POOL			0			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFPLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<u>1</u> % Cobble	<u>4</u> % Gravel	<u>60</u> % Sand	<u>20</u> % Silt	<u>15</u> % Mud/Clay	<u>0</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None observed

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

**Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.**

Surveyor's Signature: Nick Muenks Date of Survey: 5/21/07

Organization: MEL Water Resources Position: Water Quality Scientist

AMC 5-23-07  
AMC 5/25/07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u> Site #: <u>4</u> (WBID_Site#) Estimated Channel Incision: <u>0.50</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0510347</u> UTM Y: <u>4473062</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 20.9</u> (feet)  Average Stream Width: <u>60</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (20x average stream width) Field Staff: <u>Alick Muenks, Jarrod Roberts</u>	Dissolved Oxygen Date: <u>5/21/07</u> Time: <u>1145</u> Dissolved Oxygen: <u>8.82</u> (mg/L) Dissolved Oxygen: <u>104.2</u> (% sat) Specific Cond: <u>687</u> (µS/cm) Water Temperature: <u>23.5</u> (°C)
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## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)														
1	1.20	0.11	2.00	0.10	0.00	<0.10	0.50	0.10	2.50	0.10	0.00	0.18	0.60	0.11	0.50	0.10	0.00	0.11	0.20	0.15	2.40	0.10
2	1.45	0.12	2.23	0.11	0.80	<0.10	0.20	0.10	2.65	0.16	0.46	0.15	0.98	0.12	0.81	0.11	0.40	0.19	0.45	0.18	2.70	<0.10
3	1.70	0.11	2.46	0.15	1.60	<0.10	1.90	0.10	2.80	0.16	0.92	0.11	1.36	0.12	1.12	0.10	0.80	0.15	0.70	0.15	3.00	0.10
4	1.95	0.11	2.69	0.16	2.40	<0.10	2.60	0.10	2.95	0.15	1.38	0.12	1.74	0.16	1.43	<0.10	1.20	0.16	0.95	0.14	3.30	0.11
5	2.20	0.10	2.92	0.22	3.20	<0.10	3.30	0.20	3.10	0.18	1.84	0.13	2.12	0.13	1.74	0.10	1.60	0.15	1.20	0.13	3.60	0.11
6	2.45	0.10	3.15	0.16	4.00	<0.10	4.00	0.00	3.25	0.15	2.30	<0.10	2.50	0.14	2.05	0.11	2.00	0.20	1.45	0.15	3.90	0.12
7	2.70	0.10	3.38	0.18	4.80	<0.10	4.70	0.11	3.40	0.16	2.76	0.10	2.88	0.14	2.36	0.17	2.40	0.10	1.70	0.13	4.20	0.14
8	2.95	0.12	3.61	0.20	5.60	<0.10	5.40	0.10	3.55	0.14	3.22	0.10	3.26	0.13	2.67	0.17	2.80	<0.10	1.95	0.13	4.50	0.19
9	3.20	0.12	3.84	0.17	6.40	<0.10	6.10	0.10	3.70	0.12	3.68	0.10	3.64	0.10	2.98	0.15	3.20	0.10	2.20	0.12	4.80	0.13
10	3.45	0.13	4.07	0.17	7.20	<0.10	6.80	0.10	3.85	0.11	4.14	<0.10	4.02	0.12	3.29	0.18	3.60	0.10	2.45	0.12	5.10	0.15
11	3.70	0.13	4.30	0.18	8.00	<0.10	7.50	0.10	4.00	0.10	4.60	0.11	4.40	0.14	3.60	0.14	4.00	0.11	2.70	0.10	5.40	0.10
12	4.20	0					8.00	0	5.20	0	4.90	0	3.80	0	3.80	0	6.10	0	2.90	0	5.80	0
Feature Type (riffle, run, or pool)	riffle		run		riffle		50 riffle		120 riffle		30 riffle		run		20 run		210 run/riffle		20 run		40 riffle	

Notes: Transsects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transsects ordered in upstream to downstream order.  
 Transsects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Alick Muenks      Date: 5/21/07  
AWC 5-23-07      AKS/25/07

WBID# 655  
 Site# 5

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**

(must be completed for each site)

Date & Time: <u>5/21/07 1325</u>	Site Location Description (e.g., road crossing): <u>Hwy 129 crossing</u>
Personnel (Data Collectors): <u>Nick M., Jerrod R.</u>	Facility Name: <u>Unionville Country Club</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0507861</u>		Y: <u>4473803</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>100</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655.5-711</u>	<u>Downstream view from transect 5</u>		
<u>655.5-712</u>	<u>Upstream view from transect 5</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign *	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: \* purple paint on fence, water gap was washed out

WBID# 655  
 Site# 5

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**

(must be completed for each site)

**Indications of Human Use\*: (attach photos)**

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<u>10</u>			
RUN			<u>25</u>			
POOL			<u>65</u>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<u>1</u> % Cobble	<u>9</u> % Gravel	<u>70</u> % Sand	<u>15</u> % Silt	<u>5</u> % Mud/Clay	<u>0</u> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None observed

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

**Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.**

Surveyor's Signature: Nick Phuent Date of Survey: 5/21/07

Organization: MEC Water Resources Position: Water Quality Scientist

AUC 5-23-07

AKK 5/25/07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 655 Site #: 5 (WBID\_Site#)  
 Estimated Channel Incision: 0.15 (m) (height between low bank width and water)  
 GPS Location (taken at transect 1): UTM X: 0507861 UTM Y: 4473803  
 Horizontal Accuracy Estimate (GPS Data Quality): +/- 100 (feet)  
 Average Stream Width: 4.5 (meters) Length of Survey Segment: 150 (meters)  
 Field Staff: Nick Muenks Jerrold Roberts

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	1.10	0.13	0.30	0.11	0.00	0.14	0.20	0.11	1.00	0.11	1.30	0.11	1.10	0.10	0.00	0.12	0.00	0.00	0.00	1.10	0.12	0.90	0.10
2	1.36	0.12	0.81	0.20	0.45	0.57	0.50	0.31	1.25	0.13	1.57	0.10	1.31	0.10	0.25	0.12	0.80	0.10	1.50	0.16	1.34	0.24	
3	1.62	0.11	1.32	0.25	0.90	0.59	0.80	0.38	1.50	0.16	1.84	0.10	1.52	0.10	0.50	0.13	1.60	0.10	1.90	0.16	1.78	0.34	
4	1.88	0.13	1.83	0.27	1.35	0.54	1.10	0.37	1.75	0.17	2.11	0.10	1.73	0.10	0.75	0.12	2.40	0.10	2.30	0.19	2.22	0.38	
5	2.14	0.16	2.34	0.27	1.80	0.41	1.40	0.32	2.00	0.17	2.38	0.12	1.94	0.10	1.00	0.11	3.20	0.17	2.70	0.24	2.66	0.38	
6	2.40	0.15	2.85	0.31	2.25	0.32	1.70	0.25	2.25	0.17	2.65	0.13	2.15	0.10	1.25	0.13	4.00	0.44	3.10	0.27	3.10	0.39	
7	2.66	0.16	3.34	0.35	2.70	0.23	2.00	0.20	2.50	0.16	2.92	0.10	2.36	0.12	1.50	0.12	4.80	0.18	3.50	0.28	3.54	0.44	
8	2.92	0.17	3.87	0.34	3.15	0.23	2.30	0.17	2.75	0.15	3.19	0.12	2.57	0.11	1.75	0.11	5.60	0.11	3.90	0.31	3.98	0.42	
9	3.18	0.15	4.38	0.30	3.60	0.24	2.60	0.17	3.00	0.22	3.46	0.10	2.78	0.10	2.00	0.12	6.40	0.10	4.30	0.12	4.42	0.23	
10	3.44	0.14	4.89	0.25	4.05	0.25	2.90	0.13	3.25	0.21	3.73	0.14	2.99	0.10	2.25	0.12	7.20	0.10	4.70	0.10	4.86	0.14	
11	3.70	0.10	5.40	0.16	4.50	0.11	3.20	0.11	3.50	0.12	4.00	0.14	3.20	0.10	2.50	0.10	8.00	0.16	5.10	0.15	5.30	0.10	
12	4.70	0			5.00	0	3.70	0	3.70	0			5.60	0	5.00	0			6.00	0	5.70	0	
Feature Type (riffle, run, or pool)	run	run	pool	pool	pool	pool	pool	pool	run	run	run	run	riffle	run	run	run	pool	pool	pool	pool	pool	pool	pool

Dissolved Oxygen Time: 1325  
 Dissolved Oxygen: 9.83 (mg/L)  
 Dissolved Oxygen: 117.6 (% sat)  
 Specific Cond: 588 (µS/cm)  
 Water Temperature: 24.0 (°C)

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.  
 Transects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire watted width distance and depth = 0m.

Signed: Nick Muenks Date: 5/21/07  
RWC 5-23-07 AKS 5/26/07

WBID# 655  
 Site# 6

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/21/07 1430</u>	Site Location Description (e.g., road crossing): <u>Fern Trl crossing</u>
Personnel (Data Collectors): <u>Abck M., Jerrod R.</u>	Facility Name: <u>Unionville Country Club</u>
Current Weather Conditions:	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0503677</u>		Y: <u>4475317</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± <u>1m</u> Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>110</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-6-773</u>	<u>Footprints in stream</u>	<u>655-6-777</u>	<u>Downstream view transect 11</u>
<u>655-6-774</u>	<u>Downstream view transect 2</u>	<u>655-6-778</u>	<u>upstream view transect 11</u>
<u>655-6-775</u>	<u>Downstream view transect 2</u>		
<u>655-6-776</u>	<u>Upstream view transect 2</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign <sup>+</sup>	<input checked="" type="checkbox"/> Fence <sup>*</sup>	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>* along stream, no water gaps present</u> <u>+ signs on fence near gates</u>				

WBID# 655  
 Site# 6

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

**Indications of Human Use\*:** (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>9% of site</i>	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<i>40</i>			
RUN			<i>30</i>			
POOL			<i>30</i>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<i>0</i> % Cobble	<i>5</i> % Gravel	<i>60</i> % Sand	<i>34</i> % Silt	<i>5</i> % Mud/Clay	<i>0</i> % Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Nick Muenks Date of Survey: 5/21/07

Organization: MEC Water Resources Position: Water Quality Scientist

*ANC 5-23-07*  
*AK 5/25/07*

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u>	Site #: <u>6</u> <small>(WBID_Site#)</small>	Dissolved Oxygen	Date: <u>5/21/07</u> Time: <u>1430</u>
Estimated Channel Incision: <u>2.30</u> (m) (height between low bank width and water)		Dissolved Oxygen: <u>9.78</u> (mg/L)	
GPS Location (taken at transect 1): UTM X: <u>0503472</u> UTM Y: <u>4475317</u>		Dissolved Oxygen: <u>120.6</u> (% sat)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 110</u> (feet)		Specific Cond: <u>597</u> (µS/cm)	
Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) <small>(20x average stream width)</small>		Water Temperature: <u>25.9</u> (°C)	
Field Staff: <u>Alex Menkes Jarrod Roberts</u>			

## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11			
	Distance (m)	Depth (m)																						
1	0.00	0.11	0.20	0.10	0.30	0.12	1.00	0.10	0.50	0.10	0.10	0.10	0.10	0.10	1.30	0.10	1.30	0.12	0.00	0.10	0.00	0.10	<0.10	
2	0.50	0.29	0.30	0.12	0.74	0.50	1.10	0.10	0.90	0.10	0.49	0.10	0.10	0.10	1.49	0.10	1.45	0.11	0.50	0.10	0.34	0.10	<0.10	
3	1.00	0.43	0.40	0.14	1.28	0.55	1.22	0.49	1.20	0.11	1.30	0.10	0.10	0.10	1.68	0.11	1.60	0.11	1.00	0.10	0.68	0.10	<0.10	
4	1.50	0.52	0.50	0.13	1.82	0.58	1.68	0.45	1.30	0.11	1.70	0.10	0.10	0.10	1.87	0.10	1.75	0.11	1.50	0.10	1.02	0.10	<0.10	
5	2.00	0.52	0.60	0.12	2.36	0.75	2.14	0.47	1.40	0.11	2.10	0.10	0.10	0.10	2.06	0.14	1.90	0.10	2.00	0.10	1.36	0.10	<0.10	
6	2.50	0.50	0.70	0.11	2.90	0.65	2.60	0.53	1.50	0.12	2.50	0.10	0.10	0.10	2.25	0.12	2.05	0.10	2.50	0.10	1.70	0.10	<0.10	
7	3.00	0.53	0.80	0.12	3.44	0.57	3.06	0.50	1.60	0.14	2.90	0.10	0.10	0.10	2.44	0.13	2.20	0.10	3.00	0.10	2.04	0.10	<0.10	
8	3.50	0.48	0.90	0.12	3.98	0.40	3.52	0.43	1.70	0.15	3.30	0.10	0.10	0.10	2.63	0.11	2.35	0.10	3.50	0.10	2.38	0.10	<0.10	
9	4.00	0.34	1.00	0.13	4.52	0.28	3.98	0.35	1.80	0.13	3.70	0.14	0.10	0.10	2.82	0.12	2.50	0.10	4.00	0.00	2.72	0.10	<0.10	
10	4.50	0.24	1.10	0.12	5.06	0.27	4.44	0.25	1.90	0.11	4.10	0.10	0.10	0.10	3.01	0.11	2.65	0.10	4.50	0.00	3.06	0.10	<0.10	
11	5.00	0.12	1.20	0.10	5.60	0.13	4.90	0.13	2.00	0.11	4.50	0.10	0.10	0.10	3.20	0.12	2.80	0.11	5.00	0.10	3.40	0.10	<0.10	
12	5.10	0	1.40	0	5.90	0	5.20	0	3.00	0	5.20	0	0	0	3.60	0	4.10	0						
Feature Type (riffle, run, or pool)	pool	run	run	run	pool	pool	pool	pool	run	run	run	run												

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.  
 Transects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Nick Menkes Date: 5/21/07  
AWC 5-23-07  
AK 5/25/07

WBID# 655  
 Site# 7

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

Date & Time: <u>5/21/07 1620</u>	Site Location Description (e.g., road crossing): <u>Site within Mineral Hills CA</u>
Personnel (Data Collectors): <u>Nick M., Jerrod R</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>Unionville Country Club</u>
	Permit Number: <u>MO 0026646</u>
Weather Conditions for Past 10 days:	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Locations:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0504685</u>		Y: <u>4474096</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>26</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

**Photos:**

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>655-7-779</u>	<u>Downstream transect 7</u>	<u>655-7-782</u>	<u>Upstream view transect 7</u>
<u>655-7-780</u>	<u>Downstream transect 7</u>		
<u>655-7-781</u>	<u>Upstream view transect 7</u>		

**Uses Observed\*:** (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 655  
 Site# 7

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B - Site Characterization**  
 (must be completed for each site)

**Indications of Human Use\*:** (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites		<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:
Comments:					

**Stream Morphology:**

**Upstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Transect (#)	Distance from access (m)	Width (m) <i>auc</i> % of site	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE			<u>10</u>			
RUN			<u>20</u>			
POOL			<u>70</u>			

**Downstream View's Physical Descriptions:** Is there any water present at this view?  Yes  No

If so, is there an obvious current?  Yes  No

**Select one of the following channel features:**

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

**Substrate\*:** (These values should add up to 100%.)

<u>2</u> % Cobble	<u>8</u> % Gravel	<u>70</u> % Sand	<u>15</u> % Silt	<u>5</u> % Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None observed

**Water Characteristics\*:** (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

**Comments:** Please attach any additional comments to this form.

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

**Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.**

Surveyor's Signature: Nick Muent Date of Survey: 5/21/07

Organization: MEL Water Resources Position: Water Quality Scientist

*auc* 5-23-07  
 QAK 5/25/07

# MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>655</u> Site #: <u>7</u> (WBID_Site#) Estimated Channel Incision: <u>2.36</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0504685</u> UTM Y: <u>4474096</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 26.0</u> (feet) Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) Field Staff: <u>Nick Muench</u> <u>Jerrold Roberts</u>	Dissolved Oxygen Date: <u>5/21/07</u> Time: <u>16:20</u> Dissolved Oxygen: <u>7.55</u> (mg/L) Dissolved Oxygen: <u>88.9</u> (% sat) Specific Cond: <u>598</u> (µS/cm) Water Temperature: <u>23.9</u> (°C)
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## Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)																					
1	0.50	0.11	0.60	0.11	0.50	0.10	0.00	<0.10	0.00	0.10	0.00	0.11	0.00	0.10	0.00	0.39	0.00	0.15	0.30	0.20	0.30	0.12	0.12
2	0.73	0.12	0.85	0.16	0.85	0.12	0.37	<0.10	0.57	0.10	0.35	0.35	0.28	0.18	0.28	0.32	0.74	0.30	1.22	0.40	1.05	0.12	0.12
3	0.96	0.14	1.10	0.17	1.20	0.14	0.74	<0.10	1.14	0.10	0.20	0.20	0.44	0.28	0.56	0.29	1.48	0.15	2.14	0.38	1.80	0.10	0.10
4	1.19	0.16	1.35	0.15	1.55	0.10	1.10	<0.10	1.71	0.10	0.13	0.13	0.66	0.20	0.84	0.25	2.22	0.10	3.06	0.30	2.55	0.16	0.16
5	1.42	0.18	1.60	0.17	1.90	0.15	1.48	<0.10	2.28	0.10	1.72	0.16	0.88	0.15	1.12	0.23	2.96	0.10	3.98	0.25	3.30	0.25	0.25
6	1.65	0.19	1.85	0.18	2.25	0.12	1.85	<0.10	2.85	0.10	2.10	0.13	1.10	0.13	1.40	0.22	3.70	<0.10	4.90	0.24	4.05	0.20	0.20
7	1.88	0.22	2.10	0.16	2.60	0.15	2.22	<0.10	3.42	0.10	2.48	0.16	1.32	0.10	1.68	0.15	4.44	<0.10	5.82	0.31	4.80	0.22	0.22
8	2.11	0.22	2.35	0.14	2.95	0.10	2.59	<0.10	3.99	0.10	2.86	0.14	1.54	0.10	1.96	0.17	5.18	0.00	6.74	0.31	5.55	0.24	0.24
9	2.34	0.18	2.60	0.13	3.30	0.16	2.96	<0.10	4.56	0.10	3.24	0.12	1.76	0.15	2.24	0.10	5.92	0.11	7.66	0.35	6.30	0.20	0.20
10	2.57	0.15	2.85	0.12	3.65	0.14	3.33	<0.10	5.13	0.10	3.62	0.13	1.98	0.20	2.52	0.11	6.66	0.14	8.58	0.39	7.05	0.38	0.38
11	2.80	0.13	3.10	0.11	4.00	0.11	3.70	<0.10	5.70	0.10	4.00	0.11	2.20	0.14	2.80	0.12	7.40	0.12	9.50	0.11	7.80	0.37	0.37
12	3.10	0	3.50	0	4.40	0					5.00	0	2.60	0	5.50	0	7.70	0	9.70	0			
Feature Type (riffle, run, or pool)	run	run	run	run	pool	pool	riffle	riffle	riffle	riffle	pool/run	pool	run	run	pool	pool	pool	pool	pool	pool	pool	pool	pool

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.  
 GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.  
 Transsects in order of up to downstream.  
 Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1  
 Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Nick Muench Date: 5/21/07  
AWC 5-23-07 AKS/28/07

**WBID# 0655**



**Site# 1 Photo ID# 655-1-757, Downstream**



**Site# 1 Photo ID# 655-1-758, Upstream**



**Site# 1 Photo ID# 655-1-759, Upstream**



**Site# 2 Photo ID# 655-2-760, Foot prints**

**WBID# 0655**



**Site# 2 Photo ID# 655-2-761, Downstream**



**Site# 2 Photo ID# 655-2-762, Downstream**



**Site# 2 Photo ID# 655-2-763, Upstream**



**Site# 3 Photo ID# 655-3-764 Downstream**

**WBID# 0655**



**Site# 3 Photo ID# 655-3-765, Upstream**



**Site# 4 Photo ID# 655-4-766, Foot prints**



**Site# 4 Photo ID# 655-4-767, Downstream**



**Site# 4 Photo ID# 655-4-768, Upstream**

**WBID# 0655**



**Site# 4 Photo ID# 655-4-769, Downstream**



**Site# 4 Photo ID# 655-4-770, Upstream**



**Site# 5 Photo ID# 655-5-771, Downstream**



**Site# 5 Photo ID# 655-5-772, Upstream**

**WBID# 0655**



**Site# 6 Photo ID# 655-6-773, Footprints**



**Site# 6 Photo ID# 655-6-774, Downstream**



**Site# 6 Photo ID# 655-6-775, Downstream**



**Site# 6 Photo ID# 655-6-776, Upstream**

**WBID# 0655**



**Site# 6 Photo ID# 655-6-777, Downstream**



**Site# 6 Photo ID# 655-6-778, Upstream**



**Site# 7 Photo ID# 655-7-779, Downstream**



**Site# 7 Photo ID# 655-7-781, Upstream**

**WBID# 0655**



**Site# 7 Photo ID# 655-7-782, Upstream**